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planet

PROGRESS TOWARDS FEDERATED LOGISTICS
THROUGH THE INTEGRATION OF TEN-T INTO A
GLOBAL TRADE NETWORK

COORDINATION

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The emerging global corridors and their impact on the TEN-T

In the first newsletter, we shown that the purpose of the **EGTN** (Integrated Green EU-Global T&L Network) is to advance the European Commission's strategy for **Smart, Green and Integrated Transport and Logistics** by efficiently interconnecting infrastructure (TEN-T, rail-freight corridors) with geopolitical developments, as well as to optimise the use of current and emerging transport modes and technological solutions, all while ensuring the equitable inclusivity of all participants, increasing the prosperity of nations, preserving the environment and enhancing citizens quality of life.

In this regard, the emerging new trade routes are having significant impacts on the European transportation network and could shape [TEN-T network future](#).

In order to achieve PLANET'S vision and the inherent objectives, PLANET aims to understand and analyse the global, geopolitical, commercial and economic imperatives as a way to assess the impact of these emerging global trade corridors on the TEN-T network and to ensure the integration of the European network into the global transport and logistics network.

PLANET researchers have investigated the new corridors, analysing the key drivers of these emerging corridors as well as their impact on the TEN-T network. This article summarises their most relevant findings and allows PLANET community to understand the value and importance of the PLANET Project.

The relation between geo-economics, geo-political aspects and the emerging trade routes

The interaction of international economics, geopolitics and business strategy explains how trade relations are shaped and how they could lead to the development of new trade routes. This correlation is therefore the starting point for understanding the dynamics of trade patterns and trade corridors.

The elimination of tariffs, the new agreements between emerging/developing and developed countries, inequalities between regions and advances in technology and transport, were the main factors driving the boom of global freight transportation and the development of global value chains.

These same factors have also determined the distribution of negotiation and market power between companies, whether public or multinational, as well as governments in their quest to dominate trade and markets (by protecting or providing the necessary resources, products or services, as well as the necessary infrastructure).

As a consequence, new economies have entered international trade and different trends have emerged (such as the regionalisation of production for high-tech products), causing variations in import and export flows, both geographically and in terms of goods flow.

Finally, the trade patterns have also been driven and determined by external factors such as the global environmental context. Governments have pursued alternative intercontinental land and shipping routes, either via large scale infrastructure projects abroad or via the opening of natural sea routes which are becoming opportune with the warming climate and the subsequent melting of the arctic waters in summer.

New trade routes and the impacts expected on current TEN-T corridors

In this context, it is important for Europe to comprehend three emerging trade routes:

The New Silk Road: China’s Belt and Road Initiative (BRI)

Aim: Better connect China with the European continent and remove infrastructural bottlenecks in central and Southeast Asia, through six economic corridors, both maritime and land connection.

Why is this corridor relevant for Europe?

The promotion of overseas’ infrastructure development by China is explained by the westward shift from China of industrial production. The Silk Road is the maritime transport route most commonly used mode of transport in the world. This trade route is also significant important for Europe, as it stretches through Mediterranean, particularly through Greece and Adriatic ports, and ends in Europe.

China also wants to connect the western part of China to international trading networks, mainly over land by rail. Chinese leadership, in order to increase freight flows and economically justify infrastructure investments by Chinese state companies, invested in rail freight connections between China and Europe, as well as other parts of Eurasia. As a result, investments in rail infrastructure are expected to have positive medium- to long-term effects in Europe.

How could this corridor affect the TEN-T?

The Eurasian rail land corridor is appearing to be the route with the most significant perspective to develop and affect the future of TEN-T.

An increase in the rail flows to the east borders of the EU is expected as a consequence of: 1) The shift of industrial production to the west and less developed part of China (this region will demand the transport of medium and high-end products by a fast and reliable route); 2) The expected reduction of volumes transported through the maritime silk route, also enhanced by the environmental restrictions imposed by the EU.

Some railway corridors of New Silk Road reduce the lead time when compared to ocean. Additional reasons that could motivate BRI expansion are: 1) Rail transport is cheaper than air and faster than ocean; 2) Occasional capacity shortages in ocean and air freight.

The investments in rail freight connections increase the potential to create increases in freight transportation and revenues, making it a great opportunity.

However, challenges remain, such as infrastructure gaps, delays and congestion at EU arrival terminals. Moreover, EU shippers see additional obstacles such as import sanctions between the EU and Russia.

The International North-South Transport Corridor

Aim: Cost saving and drop in transit time, increasing transport efficiency.

Why is this corridor relevant for Europe?

This corridor consists of a bundle of corridors, both on land and at sea, which is being developed by several stakeholders. It is expected to save transport costs and kilometres and to connect the countries of India and Russia, including many hubs in the middle, thus, several Estate Members of EU.

How could this corridor affect the TEN-T?

The International North-South Transport Corridor is located between the Arab Basin and Northern Europe (aimed at increasing connectivity between major Eurasian cities) and is considered as a potential option for intercontinental rail freight transport expansion.

However, the corridor is yet active on a small scale and further developments of infrastructural development is very costly and highly uncertain.

The Arctic sea route

Aim: Accommodate ocean freight connections between North-East Asia and North-West Europe at considerably shorter transit times compared to the traditional Suez Canal route.

Why is this corridor relevant for Europe?

It is expected that the Arctic route become a supplement to the demanding Suez-canal route.

In addition, it is also estimated that the Arctic region achieve significant economic development (mainly due to exploration of mineral resources), leading to increased transport flows.

The increases in transport flows will include marine traffic of many types, as well as the development of land infrastructure in order to connect the polar region to market.

Several countries are therefore planning to expand their land transportation networks to the area.

How could this corridor affect the TEN-T?

The potential increase in transport flows through this corridor has driven the EU to consider expanding the TENT-T network to its northern fringes.

However, despite the geopolitical interests, the viability of this route also depends on the environmental regulations, passage rates from adjacent states, little possibilities to make profitable interim cargo exchanges due to the absence of intermediate ports and the extreme naval conditions (ice conditions could vary from partly accessible during certain months of the year to permanently accessible). As a result, special vessels and experienced crews are needed to reduce risk for cargo.

All these factors will have to be taken into account in order to understand how the route could affect the TEN-T network.

Railway transport-corridors to / from Europe

As shown above, the internal competition of supply chains is changing, in some cases as a consequence of major foreign investments in infrastructure. Infrastructure investments have been aimed at servicing new patterns of freight flows or allocating them to more desirable routes. As a consequence, this has led to the development of new nodes and links along with new corridors, while others are weakened.

In Europe, in addition to deep sea ports, rail interconnections are key freight gateways between the European Union and other continents. The possibility of connecting the European rail network with other continents, especially Asia, plays an important role in improving the interconnectivity of the European transport network as well as steering freight flows to the desired nodes, links and corridors. Therefore, there is a growing need to understand the development potential on the Eurasian corridors.

PLANET found that the most relevant emerging routes for freight transport between Asia and Europe are three:

Railway corridor	Countries involved
Eastbound (Russia)	Finland, Estonia, Latvia, Lithuania, Poland, Slovakia, Hungary, Romania
Southeast (Turkey)	Bulgaria, Greece
Southwest (Morocco)	Spain, Morocco, Algeria

However, PLANET’s research activities also highlighted that the viability of the emerging routes, as well as interoperability of the trains circulating between Europe and Asia, are significant determined by operational

and political issues, showing that the interconnection of the European rail transport corridors to the global network is not without problems.

Operational problems	
Causes	Consequences
The poor interoperability of rail infrastructure, the low digitalization levels and the lack of data harmonization along the entire global corridors.	Increased handling and transit time, reducing the competitiveness of rail.
Political problems	
Causes	Consequences
The granting of subsidies to Chinese companies for transferring container through rail, the restrictions to the transportation of dangerous goods through the Chinese network and the complicated customs procedures.	Increased transit time and conditions of unequal competition between Chinese and European companies, significant obstacles to the development of the Eurasian land corridors.

PLANET will develop a diagnoses model, an instrument that should enable us to assess the impacts of the selected parameters on the current transport volumes of the identified emerging routes, as well as to better comprehend the ecosystem of the railway transport with intermodal loading units between Europe and Russia/China.

The Physical Internet paradigm: towards efficiency and sustainability in transport logistics.

Finally, in order to properly integrate the altered flows in the TEN-T network, not only the development and improvement of infrastructures but also of technological solutions will be key.

PLANET considers that the Physical Internet (PI) paradigm, as well as other logistics and transport concepts and technologies, are also a way to develop efficient supply chains, mainly through less fragmented logistics networks and the promotion of logistics integration and collaboration (discover interesting findings on the PI paradigm in the [ICONET Project](#)). The PI thus becomes the last relevant factor for the development of the EGTN, facilitating the process of designing the EGTN toward the goals of greener transportation and operational excellence.

What is the PI's aim?	Integrate logistics networks into an open and interconnected global system through standard containers and routing protocols, improving as a result the economic and environmental efficiency and sustainability of transport and logistics.
What does PI include?	Transport, storage and physical handling operations of load units.
How could PI optimize the freight transportation?	By sharing resources through open and interconnected networks (horizontal and vertical collaborations) and through more standardized flows to develop an interconnected network and improve the efficient use of resources.

PLANET will examine the impacts that these new logistics and transport concepts and technologies will have, as well as the geo-economic aspects that could impact the adoption of the PI, obtaining a quantitative estimation of the impact of these technologies to the development of the EGTN.

Attended events



JUNE 16, 2021 – Day 2 IPIC2021, Session 25

This Special Session was dedicated to present the PLANET project overall ambition, goals, activities and expected results, as well as to show the first findings and outputs achieved during the first year of the project development.

During this session, specific use cases were showcased where the Physical Internet was introduced as an approach to: 1) Optimize stakeholder infrastructures and operations by integrating logistics networks and taking advantage of the new technological reality in T&L, such as Blockchain, IoT and AI; 2) Efficiently exchange T&L data flows in a secure and privacy-preserving way within logistics networks; 3) Optimize end-to-end supply chains interconnection along the TEN-T corridors by sharing resources through horizontal and vertical collaborations; and 4) Efficiently and sustainably interconnect infrastructures (TEN-T, freight rail corridors) with current and emerging trade routes, improving decision-making.

You can watch the presentations of our colleagues Gerasimos Kouloumbis (Inlecom), Georgia Ayfantopoulou (CERTH-HIT) and Gosia Kirchner (ILIM Poznan) on our [YouTube channel!](#)

JUNE 23, 2021 – Online Webinar on the Eurasian Corridors for Combine transport

This PLANET Project webinar was related to Living Lab 2, which specifically focuses on (1) expanding the emergent potential trade routes for railway transport, (2) on the assessment of the current geo-politics, legal, operational and technical hurdles and barriers on the selected routes and (3) on the evaluation and prioritisation of the best innovative solutions.

Under the moderation of UIRR, the aim of the webinar was to define altogether a possible PLANET pilot proof-of-concept that would support the intercontinental activities of all concerned stakeholders.

You can download the presentations [here!](#)



Upcoming events

Progress towards Federated Logistics through the Integration of TEN-T into A Global Trade Network

#2 PLANET General Assembly Meeting
October 20 - 21, 2021

Progress towards Federated Logistics through the Integration of TEN-T into A Global Trade Network

PLANET – Advisory Board Meeting
21 October 2021

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